

# **Attachment 4**

## **Project Description**

## Project Description

Paso Robles Groundwater Basin

Analysis of Groundwater Elevation Management Strategies

San Luis Obispo County, California

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## Background

Over the past decade, the San Luis Obispo County Flood Control and Water Conservation District (District) and the City of Paso Robles (City) have worked with other groundwater users in the Paso Robles Groundwater Basin (Basin) (see **Figure 4-1**) to begin an organized approach to groundwater management. This effort culminated with completion and adoption of the Paso Robles Groundwater Basin Groundwater Management Plan (GMP or Plan) by both of those entities. The Plan was prepared under the direction of the Groundwater Advisory Committee, which represents 15 different organizations and interest groups in the Basin. The preparation of the Plan was funded by a Local Groundwater Assistance Grant (AB303) in 2007-2008.

The Plan was prepared coincident with the preparation of San Luis Obispo County's RCS of the Basin as well as other ongoing studies to develop a stakeholder-driven plan to provide a framework for future groundwater management activities in the Basin. Ongoing coordinated groundwater management is going to be needed in the Basin because recent studies have suggested that the Basin is near or at the perennial yield of about 97,700 acre-feet per year. A groundwater elevation change map has been prepared that represents the changes in groundwater levels for the 1997 to 2009 period and is shown on **Figure 4-2**. This map shows that the greatest change in groundwater elevations has occurred in the western portion of the Basin identified in the GMP as the Estrella Subarea. Over this period, groundwater elevations have declined to a lesser extent in the Creston and Shandon Subareas. Groundwater levels in the western portion of the Paso Robles Basin have declined in excess of 70 feet since 1997 during a period when precipitation was just slightly less than the long-term average annual precipitation.

The Resource Capacity Study (RCS), prepared by the San Luis Obispo County (County) Planning Department in February 2011, reconfirmed that the Basin is near or at perennial yield. The RCS included land use and water use monitoring and conservation recommendations within the authority of the County and District to help ensure the sustainability of the Basin into the future. Outside of the authorities identified in the RCS there are very few groundwater management regulations. So the voluntary effort presented in the GMP, now being implemented by the Paso Robles Basin Groundwater Management Steering Committee (Steering Committee) represents the best opportunity to improve groundwater conditions in the Basin.

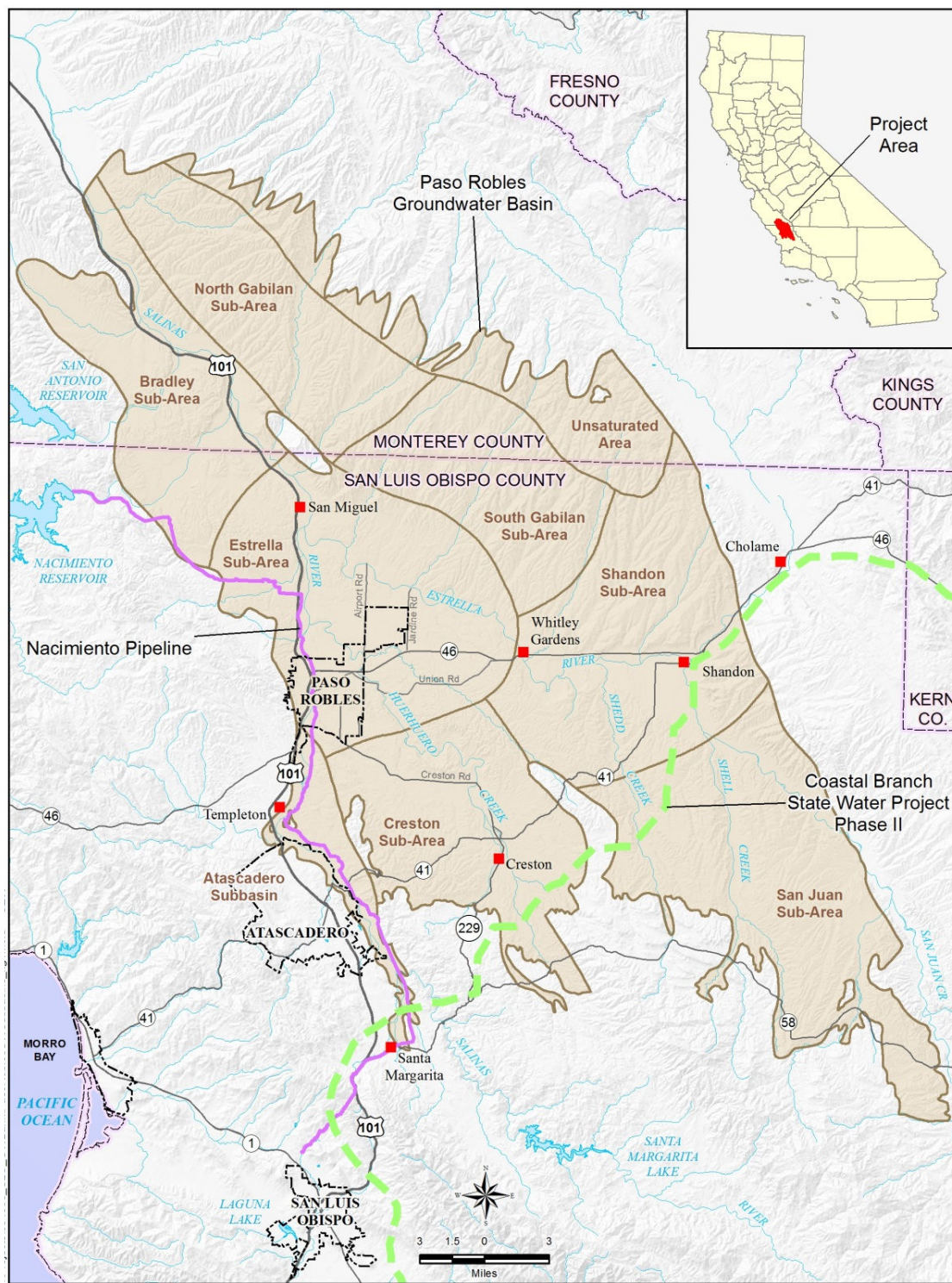
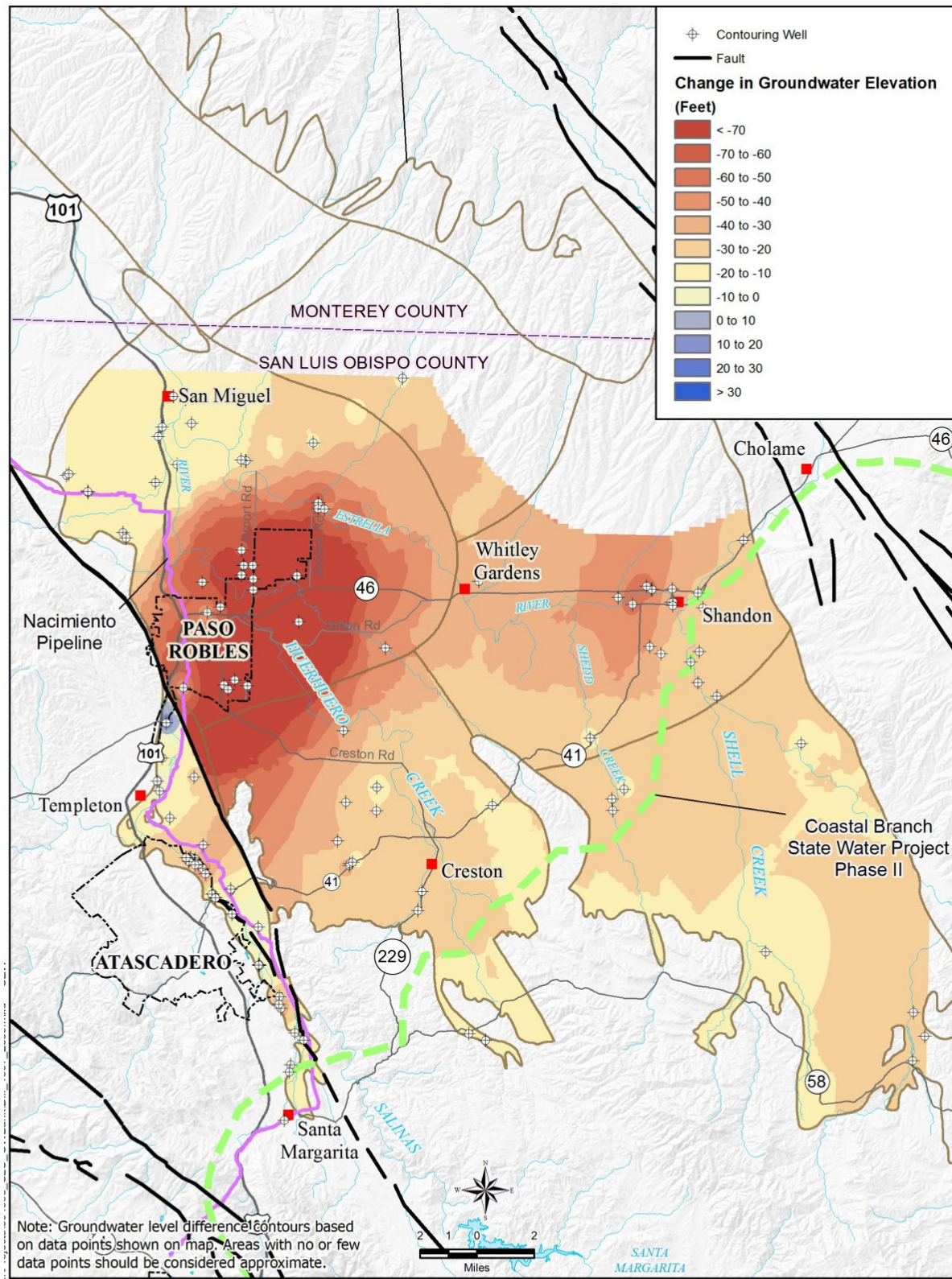


Figure 4-1 – Paso Robles Groundwater Management Area



**Figure 4-2 - Difference in Spring Groundwater Elevations 1997 to 2009**

These efforts lead to the development of the Paso Robles Groundwater Basin Analysis of Groundwater Elevation Management Strategies (AGEMS) Program, which is included in this grant application. The AGEMS Program supports the Modeling and Technical Analysis Activity (Activity 4.4) of the GMP's Groundwater Sustainability Component (Component 4). This addresses the GMP's BMO to *Maintain and Improve Groundwater Levels* which is intended to ensure that overall groundwater levels are maintained to provide long-term reliable sources of water for the economic well being of the area. Some of the activities identified in the GMP to support this BMO include:

- Reduce groundwater pumping
- Increase overall water supply
- Increase water reuse or recycled water supply
- Protect and increase groundwater recharge
- Limit future increases in groundwater pumping

The Steering Committee has already initiated the first part of the AGEMS Program by proceeding with the update of the existing groundwater model of the Paso Robles Groundwater Basin completed in 2005. The model update is being funded by the District outside of this project. The existing groundwater model was originally developed in MODFLOW-2000 using the Groundwater Vistas graphical-user-interface (GUI) for a base period from 1981 to 1997. This model was used to conduct the groundwater analysis as part of the Paso Robles Groundwater Basin Water Banking Feasibility Study (2007). The existing model will be re-cast in MODFLOW-2005 and the estimated groundwater recharge and discharge components from 1998 to 2011 inputted into the MODFLOW-2005 version of the model.

The model update will produce the Projected Baseline Condition that will be used in this project to compare the effectiveness of each of AGEMS' alternatives.

The updated model will provide the technical tools and updated data necessary to support the analysis conducted as part of the AGEMS Program. The QA/QC procedures of the model update (described in Attachment 8) document the quality and usefulness of the data and groundwater model and demonstrate that it is a technically feasible method to conduct this analysis. The additional information and data developed for the groundwater management alternatives will be developed consistent with the methods and approaches used to develop the data for the model update.

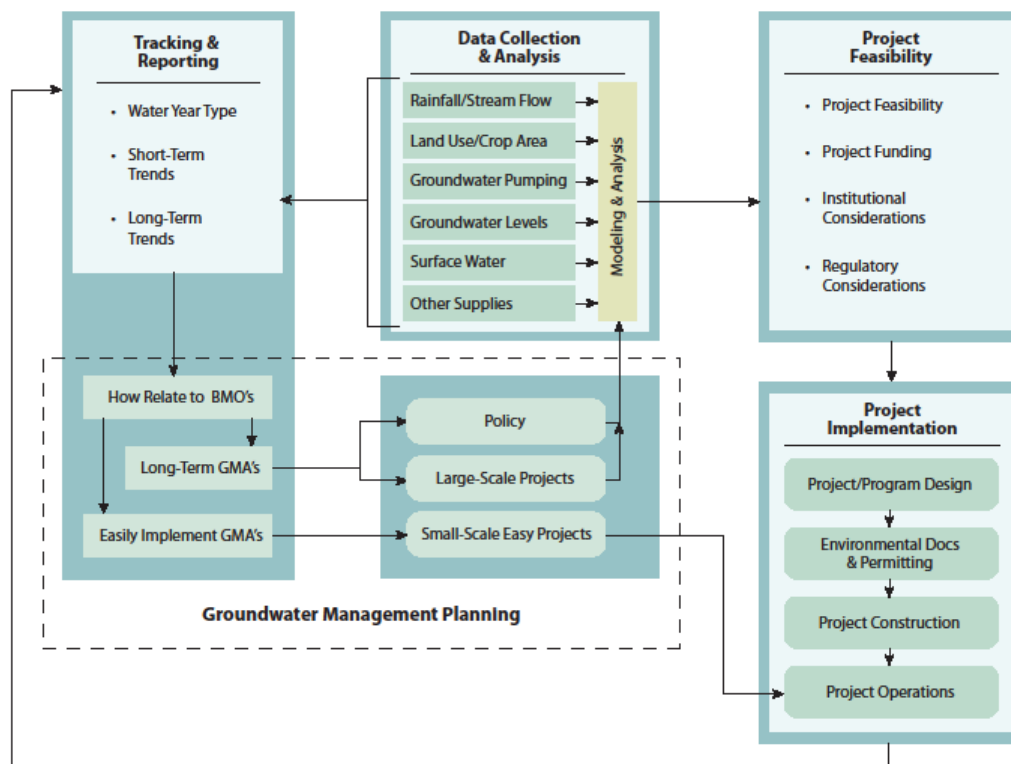
The model update is necessary because there have been considerable land use and water use changes in the Basin since 1997 (last year of the model simulation period). Fortunately, information on many of these changes has been collected and will be incorporated into the model update. Some of these data that will be incorporated into the model update and the AGEMS Program include:

- Spring and fall groundwater level data that have been collected annually will be used to update the model hydrologic period through 2011.
- A GIS land use analysis was completed in 2007 to update land use and corresponding water use information to identify changing conditions.
- Groundwater pumping data that have been reviewed and updated.

- The Basin groundwater studies and existing groundwater model have been peer reviewed. This effort has identified some of the changes that will be incorporated into the model update.

## Goals and Objectives

The goal of the GMP was to develop a common understanding of the groundwater issues and management opportunities in the Basin and to identify and support projects such as conjunctive use, recycled wastewater, and demand management, which will improve groundwater management. Following its development, the goal of the Plan is to implement the activities to achieve the Basin Management Objectives. **Figure 4-3** (originally included in the GMP) shows some of the interconnectivity of the groundwater management activities in the Basin. The AGEMS Program is part of the Modeling and Analysis activities.



**Figure 4-3 - Groundwater Management in the Paso Robles Groundwater Basin**

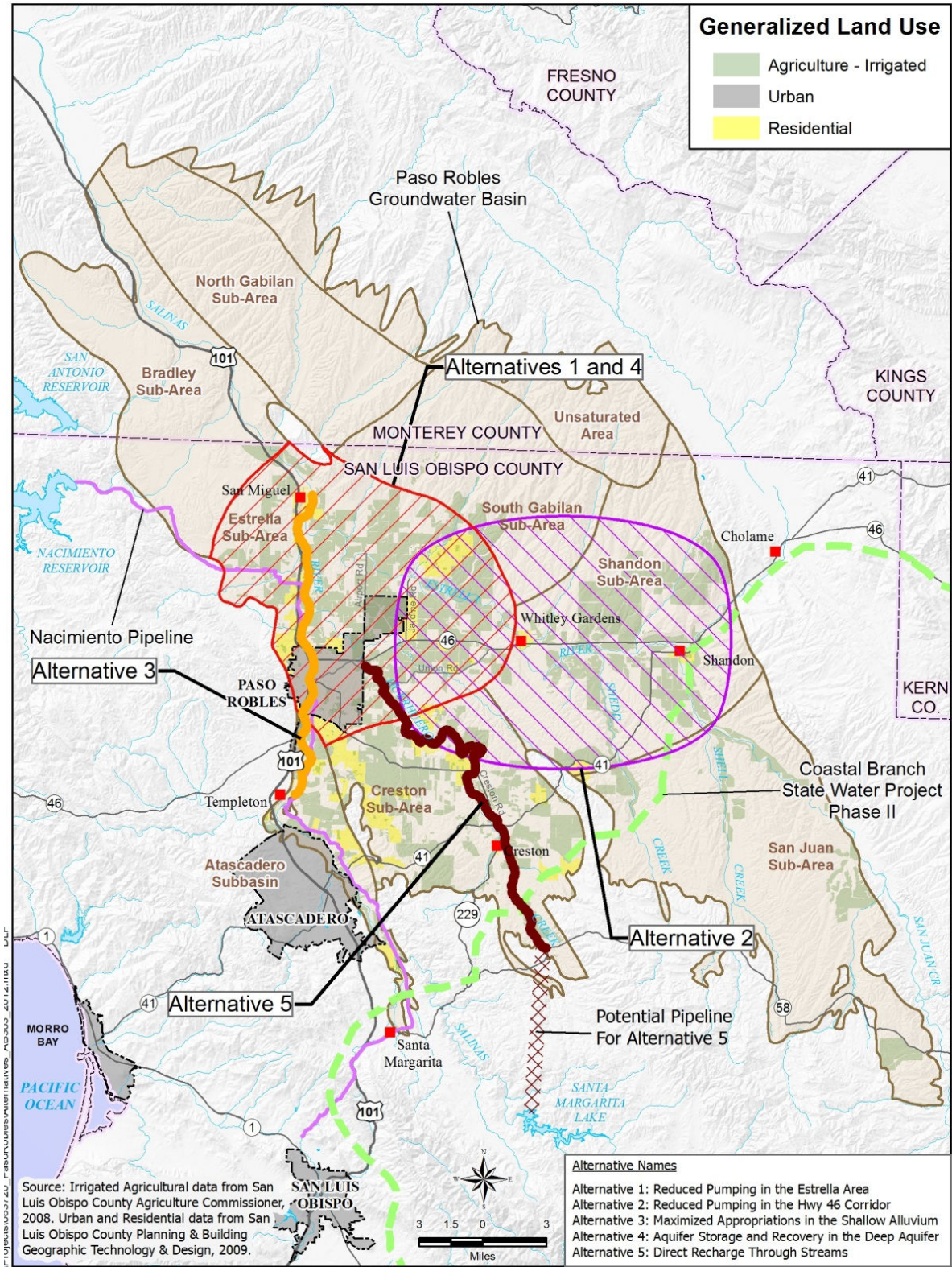
AGEMS supports the goal of improving the understanding of groundwater management opportunities, including identifying opportunities to improve groundwater levels in the Basin, by meeting the following objectives:

- Completing the technical analysis needed to evaluate potential groundwater management opportunities that maintain/improve groundwater elevations in the Basin.
- Identifying the effectiveness of varying the distribution and amount of pumping throughout the Basin to meet groundwater level BMOs.

- Improving our understanding of the aquifer relationships in and around the existing groundwater depression located in the western portion of the Basin to support ongoing groundwater management.
- Identifying the potential beneficiaries of the each of the alternatives.
- Developing the range of costs to achieve these benefits to allow for fair and equitable distribution of costs to potential project participants to support the development of funding strategies.
- Further defining groundwater recharge opportunities along the Salinas River and Huerhuero Creek.

## Needed Facilities

To meet these goals, additional technical groundwater analysis is needed in the Basin to improve the understanding of the groundwater flow and the effects of projects on local groundwater elevations and the overall Basin conditions. The proposed AGEMS Program funded by this AB303 grant would include the technical analysis needed to compare the effectiveness of these projects at the various locations in the Basin, shown on **Figure 4-4**.



**Figure 4-4 - Location of Groundwater Management Alternatives in the Paso Robles Groundwater Basin**

## Locations

The groundwater management alternatives being considered in the AGEMS Program is shown in **Figure 4-4**.

## Area Affected

The estimated affected area of each of the groundwater management alternatives being considered is shown on **Figure 4-4**. The largest effect of each of the alternatives is anticipated to be located within each of these areas within the Basin.

## Collaboration

The Paso Robles Groundwater Management Plan Steering Committee (Steering Committee) was formed during the completion of the GMP to direct the implementation of the GMP. The Steering Committee includes representatives from the following agencies and interest groups:

- Atascadero Mutual Water Company
- Central Coast Vineyard Team
- City of Atascadero
- City of Paso Robles
- Flood Control and Water Conservation District
- Monterey County Water Resources Agency
- Paso Robles Imperiled Overlying Rights (PRIOR)
- Paso Robles Wine Country Alliance
- San Luis Obispo Cattlemen's Association
- San Miguel Community Services District
- Templeton Community Services District
- Upper Salinas-Las Tablas Resources Conservation District
- Four At-Large Members

The Steering Committee has met on a monthly basis since their inception in August 2011. The Steering Committee holds monthly public meetings to organize and disseminate information. During the proposed project schedule updates on the projects progress will be presented to the Steering Committee at five of their regularly scheduled meetings. Additional coordination and communication with the Steering Committee, interested stakeholders will be conducted using the established email distribution list. Project updates and draft and final deliverables will be posted on the District's website to facilitate coordination and outreach to the general public and other local, State, and federal agencies. The Steering Committee is in full support of this project as demonstrated in their letter of support for this grant application.



**Paso Robles Groundwater  
Basin  
Steering Committee**

Larry Werner  
Chairperson  
[pasobasincommittee@gmail.com](mailto:pasobasincommittee@gmail.com)

Lisa Bodrogi  
Vice Chairperson

**Members**

John Neil  
Jaime Hendrickson, Alternate  
*Atascadero Mutual Water Co.*

Kris Beal  
Willy Cunha, Alternate  
*Central Coast Vineyard Team*

Russ Thompson  
David Athey, Alternate  
*City of Atascadero*

Christopher Alakel  
Keith Larson, Alternate  
*City of Paso Robles*

Courtney Howard  
Dean Benedix, Alternate  
*Flood Control and Water  
Conservation District*

Robert Johnson  
Kathleen Thomasberg, Alternate  
*Monterey County  
Water Resources Agency*

Steve Sinton  
Kent Gilmore, Alternate  
*Paso Robles Imperiled  
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Lisa Bodrogi  
Jerry Reaugh, Alternate  
*Paso Robles Wine Country  
Alliance*

Kurt Bollinger  
Ray Allen, Alternate  
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Jay Short, Alternate  
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Jim Magill, Alternate  
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Dana Merrill  
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Maria Lorca, Alternate  
*At-Large*

July 6, 2012

Mr. Tom Lutterman  
Department of Water Resources  
Division of Integrated Regional Water Management  
Regional Planning Branch  
P.O. Box 942836  
Sacramento, CA 94236-0001

Subject: Endorsement of the Paso Robles Basin Groundwater Management  
Alternatives Analysis Local Groundwater Assistance Grant Application

Dear Mr. Lutterman:

The Paso Robles Groundwater Basin (Basin) Management Plan Steering Committee supported and endorsed San Luis Obispo County Flood Control and Water Conservation District's (District) application for funding to conduct an analysis of management alternatives at its meeting on June 21, 2012, and encourages the Department of Water Resources to fund the project. This project is needed to determine how to best stabilize and maintain levels in the Basin which have been steadily declining since 1980. The Steering Committee members have undertaken several cooperative efforts related to management and monitoring of the Basin as described in the application submitted by the District. Funding this project would help facilitate continuing these cooperative efforts.

The proposed project will utilize an updated computer model of the Basin to analyze the ability of various management strategies, such as offsetting groundwater pumping through the use of surface water, recycled water and conservation, and optimizing the use of available allocations of water, to stabilize and maintain groundwater levels over time. The results for each strategy will be evaluated with other factors, such as cost and constructability, to identify one or more preferred alternatives to consider pursuing. This effort is consistent with implementation activities identified in our adopted groundwater management plan.

A grant from the Department of Water Resources will help undertake this important project to better manage our precious resource and we encourage you to fund this project.

Sincerely,

Larry Werner  
Steering Committee Chair

**Mission Statement**

***"The Steering Committee will coordinate with stakeholders to implement the  
Groundwater Management Plan to ensure the health of the basin"***

## **Project Need and Merit**

The primary issue facing the groundwater users in the Basin is lowering groundwater levels in the southwest portion of the Basin. The groundwater level Basin Management Objectives (BMOs) included in the GMP are based on these conditions. This issue needs to be addressed to conserve this valuable resource to ensure long-term groundwater supply reliability. This project strives to offer solutions to these problems by providing critical new information about the effectiveness and costs of various groundwater management alternatives that will aid in future management decisions.

## **New Knowledge**

This project will provide new knowledge about groundwater resources in the Paso Robles Groundwater Basin. Specifically it will help our understanding of:

- The magnitude (change in elevation) and range (geographic extent) of improved groundwater elevations resulting from various groundwater management alternatives that vary the amounts and locations of groundwater pumping in the Basin.
- The costs associated with the improvements in groundwater conditions from various groundwater management alternatives ( direct recharge, in-lieu recharge, additional water conservation).
- The potential beneficiaries of these projects.

## **Improvement in Groundwater Management**

The project will improve groundwater management and understanding by identifying potential projects that improve groundwater levels in the Basin. Specifically, the AGEMS Program will identify the project benefits (terms of improved groundwater levels) and their associated costs, and other implementation considerations to rank the projects. This information will provide the Steering Committee and interested stakeholders information that can be used to support their decision making process related to the groundwater level BMOs.

This project benefits all of the municipal, industrial, rural residential and agricultural groundwater users in the Basin. It may also benefit the environment by providing more in-depth knowledge of surface water/groundwater interactions.

## **Ongoing Use**

The results of the AGEMS Program will be incorporated into the GMP's implementation by providing information to support future groundwater management planning if the groundwater levels BMOs are not met. The BMOs are tracked on an annual basis and presented in the Annual Monitoring Report for the Basin.

The San Luis Obispo County Flood Control and Water Conservation District is committed to improving groundwater conditions in the Paso Robles Groundwater Basin. On June 12, 2012, the

Board of Supervisors committed \$308,800 to groundwater management activities in the Paso Robles Groundwater Basin during fiscal year 2012-13, including the preparation of the Annual Groundwater Monitoring Report, participation in the Steering Committee, and identification of groundwater management alternatives to address the declining groundwater elevations in the Basin, and the groundwater model update. They plan to continue funding groundwater management activities beyond 2014.

These funding commitments are in addition to the ongoing County-wide groundwater elevation monitoring program. The County, through the San Luis Obispo County Flood Control and Water Conservation District, has been continuously collecting groundwater measurements on an annual basis in the local groundwater basins since the early 1950s. On December 14, 2010, the San Luis Obispo County Board of Supervisors directed the Public Works Department to work with DWR to participate in the California Statewide Groundwater Elevation Monitoring Program (CASGEM).